

Abstract:

Page 32, in the abstract section, replace with the following new abstract paragraph:

--- MIMO-BASED MULTIUSER OFDM MULTIBAND
FOR ULTRA WIDEBAND COMMUNICATIONS

Abstract of the Disclosure

~~A MIMO-based multiuser OFDM multiband of UWB for a short distance wireless broadband communication is disclosed for the indoor UWB operation. Eleven multi-frequency bands are employed, with each of the multi-frequency bands having 650 MHz bandwidths. A 1024-point IFFT and FFT with 1000 subcarriers are used to carry data and pilot information within each of the multi-frequency bands. The MIMO-based multiuser OFDM multiband of UWB base station communication transmitter with employing eleven antennas can transmit and receive N users at the same time. One of the modulations including BPSK, QPSK or 16-QAM is employed for a different data rate with scalability in the multi-frequency bands. The transmitting distance between the UWB base station and a user station has been enhanced due to the MIMO system. The maximum transmitting data rate of the MIMO-based multiuser OFDM multiband of the UWB communication system can approximately achieve up to 11 Gbps in the indoor environment.~~

A MIMO-based multiuser OFDM multiband of UWB communications is presented to meet FCC emission limitations for indoor UWB operations. The present UWB system divides a single UWB frequency band of 7.5 GHz into eleven frequency bands as a multiband. Each frequency band has 650-MHz frequency bandwidth, uses an OFDM with multicarrier, and employs different modulations. The present UWB system can be programmable not only to transmit different data rates in a relatively longer distance but also to avoid interference with other devices by

controlling the multiband and/or some of the multicarrier within each of the OFDM. The present UWB system can transmit a very high data rate up to 11 Gbps approximately.